

WE CLAIM:

1. A sleeve loaded with at least one therapeutic drug for the eventual release thereof at a treatment site within a body lumen, comprising:

a prefabricated patterned tubular sleeve portion having independent drug-loaded elements, the tubular sleeve being releasably attached to an outer surface of a stent structure in an unexpanded condition, at least a portion of the patterned tubular sleeve portion being decoupled from the outer surface of the stent when the stent is in an expanded condition so that the independent drug-loaded elements are held against the body lumen by at least a portion of the patterned tubular sleeve portion.

2. The sleeve of claim 1, wherein the patterned tubular sleeve portion is fabricated from a polymeric material.

3. The sleeve of claim 1, wherein the patterned tubular sleeve portion is fabricated from a metallic material.

4. The sleeve of claim 1, wherein the patterned tubular sleeve portion includes a plurality of depots.

5. The sleeve of claim 3, wherein the patterned tubular sleeve portion includes a plurality of longitudinal channels.

6. The sleeve of claim 1, wherein the patterned tubular sleeve portion is configured as a wave pattern.

7. The sleeve of claim 1, wherein the patterned tubular sleeve portion is configured as a braided mesh pattern.

8. The sleeve of claim 1, wherein the patterned tubular sleeve portion is configured as a longitudinal slot pattern.

9. The sleeve of claim 1, wherein upon expansion of the stent, the patterned tubular sleeve portion completely releases from the outer surface of the stent.

10. The sleeve of claim 1, wherein upon expansion of the stent, the patterned tubular sleeve portion has an opening in the range from about 0.1 mm² to about 4.0 mm² in area.

11. The sleeve of claim 1, wherein upon expansion of the stent, the patterned tubular sleeve portion has an opening in the range from about 0.3 mm to about 2.0 mm in length.

12. The sleeve of claim 1, wherein the patterned tubular sleeve portion includes a pattern of struts interconnected to form the sleeve for contacting at least a portion of the walls of the body lumen.

13. The sleeve of claim 12, wherein the struts have a radial thickness in the range from about 10 nanometers to about 10 micrometers.

14. The sleeve of claim 12, wherein the struts have a width in the range from about 100 nanometers to about 100 micrometers.

15. The sleeve of claim 1, wherein the patterned tubular sleeve portion has an elastic modulus in the range from about 0.05 megapascals to about 30.00 megapascals.

16. The sleeve of claim 1, wherein the patterned tubular sleeve portion has a drug loading capacity in the range from about 0.1 micrograms to about 100 milligrams of therapeutic drug or agent.

17. A sleeve loaded with at least one therapeutic drug for the eventual release thereof at a treatment site within a body lumen, comprising:

a prefabricated patterned tubular sleeve portion having independent drug-loaded elements completely detached from an outer surface of a stent structure in an unexpanded condition, the independent drug-loaded elements loaded into the patterned tubular sleeve portion being decoupled from the outer surface of the stent while the stent is in an expanded condition so that the independent drug-loaded elements are held against the body lumen.

18. A sleeve loaded with at least one therapeutic drug for the eventual release thereof at a treatment site within a body lumen, comprising:

a prefabricated patterned tubular sleeve portion having independent drug-loaded elements, the patterned tubular sleeve portion being attached to at least a portion of an outer surface of a stent structure in an unexpanded condition, the independent drug-loaded elements being decoupled from the at least a portion of the outer surface of the stent, wherein the independent drug-loaded elements are pressed against the body lumen by the patterned tubular sleeve portion when the stent is in an expanded condition.

19. An assembly for delivering a therapeutic drug within a body lumen, comprising:

a stent having an outer surface and being in an unexpanded condition

mounted on a stent delivery catheter;

a prefabricated cover having a therapeutic drug selectively loaded into at least a portion of the cover;

the cover being releasably attached to the stent outer surface after the stent is mounted on the catheter assembly so that the drug is decoupled from the unexpanded stent; and

at least a portion of the cover detaching from the stent outer surface when the stent is expanded so that the drug loaded portion of the cover is pressed against the body lumen allowing the therapeutic drug to release into the body lumen.

20. A filament cover loaded with at least one therapeutic drug for the eventual release thereof at a treatment site within a body lumen, comprising:

a plurality of individual filament strands arranged longitudinally around an outer surface of a stent structure in a spaced apart orientation, the plurality of individual filament strands each loaded with at least one therapeutic drug for the release thereof at the treatment site;

wherein the plurality of individual filament strands are held against the body lumen while the stent structure is in an expanded condition.

21. The filament cover of claim 20, wherein the plurality of individual filament strands are attached to at least a portion of the outer surface of the stent structure.

22. The filament cover of claim 20, wherein the plurality of individual filament strands include depots.

23. The filament cover of claim 20, wherein the plurality of individual filament strands include longitudinal channels.

24. The filament cover of claim 20, wherein the plurality of individual filament strands include undulations.

25. A method for delivering a therapeutic drug within a body lumen, comprising:

providing a stent having an outer surface;

mounting the stent on a stent delivery catheter while in an unexpanded condition;

providing a prefabricated cover having a therapeutic drug selectively loaded into at least a portion of the cover;

releasably attaching the cover to the stent outer surface after the stent is mounted on the catheter assembly so that the drug is decoupled from the unexpanded stent;

detaching at least a portion of the cover from the stent outer surface when the stent is expanded so that the drug loaded portion of the cover is pressed against the body lumen; and

releasing the therapeutic drug into the body lumen.